

ABSTRACT

The present invention is concerned with a continuously variable power split transmission (CVPST) system for use in a hybrid vehicle. The vehicle has a first motor, such as an internal combustion (IC) engine and a second motor, such as an electric motor. The system has a step-up gearbox for providing additional fixed speed ratios to extend overall transmission conversion range (CR) of the system. The system also has a speed variator and a countershaft being operatively connected to the second motor of the vehicle so that any power input applied by the second motor to the countershaft reduces the power flowing through the speed variator. Also, an adjustment of the variator speed ratio i_v allows a passage from underdrive i_{UD} to overdrive i_{OD} range of speed ratios in the step-up gearbox to be synchronized.